

Curriculum Vitae

Prof. Dr. Erwin Zehe

Affiliation

Office

Chair for Hydrology
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Home

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76199 Karlsruhe
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Personal

May 9th 1967 Birth in Koblenz, Germany

Marital status: married, one child

Nationality: German

Languages: German (native), English (fluent), French (advanced), Turkish (beginner)

Education, military- and social service

1973 – 1977 Primary school in Koblenz

1977 – 1986 Secondary school, Eichendorff-Gymnasium in Koblenz, Abitur 1986

Sep. 1986 – Social service, Arbeiterwohlfahrt in Koblenz

Nov. 1986

Jan. 1987 – Military service, Fallschirmjäger Bataillon 261 in Lebach, Germany

April 1988

Academic education

Oct. 1988 – Undergraduate Studies in Physics, University of Freiburg, Vordiplom in Physics (1.3)

July 1990

April 1991 – Graduate Studies in Physics, University of Bonn (Germany), Diplom (M.Sc.) in Physics,

Oct. 1994 October 1994, (1.0)

April 1995 – DFG scholarship in Graduate School *Ecological Water Management*, Institute for

Dec. 1998 Hydrology and Water Recourses Planning, University of Karlsruhe.

July 1999 PhD (Dr.-Ing.) Faculty of Civil Engineering, University of Karlsruhe, supervised by Prof. Dr. E. Plate and Prof. Dr. H. Flüßler (magnacum laude)

Professional experience

Jan. 1995 – Research Associate, Institute of Meteorology, University of Bonn

March 1995

April 1995 – DFG scholarship in Graduate School *Ecological Water Management*, Institute for

Dec. 1998 Hydrology and Water Recourses Planning, University of Karlsruhe.
 Jan. 1999 – Research Associate, Institute for Water Recourses Planning and Rural Engineering,
 April 2001 University of Karlsruhe
 Mai 2001 – Research Associate, Institute of Hydraulic Engineering, University of Stuttgart
 Dec. 2003
 Dec.2003 – Junior-Professor for *Water and Solute Transport in Landscapes*, Institute of
 March 2008 Geoecology, University of Potsdam
 Jan. 2004 – Guest researcher at Centre for Water Research, University of Western Australia
 March 2004
 March 2008 Professor for Hydrology and River Basin Management, Institute of Water and
 – April 2011 Environment, Technische Universität München
 Since April Professor for Hydrology at the Karlsruhe Institute of Technology KIT, Karlsruhe
 2011

Research interests and activities

Please refer to separate short résumé of our research philosophy, approach and ongoing projects

Teaching

Please refer to my teaching port folio

Scientific activities and community service,

Editorial Boards	Associate Editor of <ul style="list-style-type: none"> ▪ Hydrology and Earth Systems Sciences (HESS), ISI-impact 2.16, since 2006 ▪ Journal of Hydrology, ISI-impact 2.305 (Oct 2009 – Sep. 2011)
2003 - 2009	Member of the Scientific Steering Group (SSG) in the IAHS research initiative <i>Prediction in Ungauged Basins (PUB)</i> <ul style="list-style-type: none"> ▪ 2003 -2005: Theme leader <i>New modelling approaches</i> ▪ 2005 -2007: Theme leader <i>Uncertainty assessment and reduction</i> ▪ 2007 - 2009: Theme leader <i>Towards a new hydrological theory</i>
Journal reviewer	Water Resources Research, Journal of Hydrology, Hydrological Processes, Hydrology and Earth System Science, Groundwater, Zeitschrift für Meteorologie, Philosophical Transactions B, Soil Science Society AJ, Hydrological Science Journal
Proposal reviewer	<ul style="list-style-type: none"> ▪ German Research Foundation (DFG) ▪ Swiss Science Foundation (National Fond) ▪ NERC (Natural Environment Research Council UK)
Key notes and invited talks	<ul style="list-style-type: none"> ▪ Zehe, E., Haksu, Lee, Sivapalan, M. (2004): <i>Use of the REW concept for PUB: Bridging the gap between local Process Models and Mesoscale Models.</i> International Association of Hydrological Sciences (IAHS) Predictions in Ungauged Basins (PUB)Workshop on Australia – Japan PUB Working Groups St. Catherine’s College, University of Western Australia, Perth February 2-5, 2004.

- Bronstert, A. and Zehe, E. (2004): *Process-based hillslope hydrological modelling and its relation to water and solute dynamics at the catchment scale*. Research Abstracts Vol. 8, ISSN: 1029-7006, Hydrological Sciences, Hydrology and Earth System Science HS41, Solicited oral presentation at EGU General Assembly, Nice, April 2004.
- Zehe, E. and Sivapalan, M. (2005): Linking Ecology and Hydrology: a key to solve the PUB problem? HS28 Climate-soil-vegetation dynamics and their impacts on water balance and hydrological extremes. Solicited oral presentation at EGU General Assembly Vienna, Austria, 24 - 29 April 2005.
- Zehe, E. (2006): *Alte Konzepte, neue Hüllen*. RIMAX Workshop zur Niederschlag-Abflussmodellierung, Trier 10/11 April 2006.
- Zehe, E. (2008): *Spatial TDR a new approach for observing 4d- soil moisture dynamics at the field scale: promise, progress, problems*. Solicited oral presentation at European Geosciences Union General Assembly 2008 Vienna, Austria, 13 – 18 April 2008.
- Zehe, E. (2008): *Thermodynamic perspective on soil water flow ... or what is the advantage of preferential flow*. Science for an Ever Changing World: Search for New Hydrologic Concepts, Theories, Models and Practices”, Delft University of Technology, Netherlands
- Zehe E., Blume T., Bloeschl G.(2009): *Can we infer optimal hillslope architectures from the MED/MEP principle?* Workshop on Maximum Entropy Production in the Earth System, Jena,.
- Zehe, E., Kleidon A. (2009): *What can we learn from thermodynamic principles for hillslope and small catchment hydrology? 52nd Edition of the colloquium series “Recent Advances in Water Resources*. 17th November 2009, Technical University Delft, *The Netherlands*.
- Zehe, E. Jackisch, C., Tietjen, B. (2009): *Integrierte Modellierung: Komplexität versus Einfachheit*. Workshop on *Integrated modelling of humanenvironmental systems*. 11/12. December 2009, Karlsruhe Institute of Technology, Germany.
- Zehe, E. (2010): Modellierung des Wasser und Stofftransport. Hydrologie und Bodenkunde – vom Punkt zur Fläche Gemeinsame Tagung der Österreichischen Bodenkundlichen Gesellschaft (ÖBG) und der Österreichischen Gesellschaft für Hydrologie (ÖGH) 2010 Wien.
- Zehe, E. and Blume, T. (2011): *Groundwater hydrology and surface/vadose zone hydrology – is there a connection*. Solicited oral presentation at European Geosciences Union General Assembly 2011 Vienna, Austria, April 2011.
- Zehe, E. (2011): Catchments as organised systems: Invited lecture at the 2nd Water Research Horizon Conference in Berlin, June 2011.

Conference organisations

- Tag der Hydrologie *Wasser- und Stofftransport in heterogenen Einzugsgebieten* in Potsdam, 2-3 March 2004, conference organisation and scientific committee.
- IAHS PUB Workshop *Uncertainty Assessment in Environmental Modelling*, Menagio, 6-8 July 2004, conference organisation and scientific committee.
- Vith IAHS Scientific Assembly in Foz do Igacu, Brazil, scientific committee and convener of Session 7.6 *New distributed modelling approaches and methods for testing models against observations*, within symposium 7 *Prediction in*

Ungauged Basins: Promises and progress, convener.

- RIMAX Workshop zur Niederschlag-Abflussmodellierung, Trier, Germany, 10 – 11 April 2006, scientific committee.
- VIIth IAHS Scientific Assembly in Perugia. Theme II- Prediction, HW2004 *Towards an improved evaluation of Hydrological Models*, July 2007, co convener.
- EGU General Assembly 2007, Session HS 28, *Catchment architecture*, co convener.
- EGU General Assembly 2009, Session NH4.2/HS11.7 *Hydrological processes in landslide research: analysis and quantification*, co convener.
- VIIth IAHS Scientific Assembly in Hyderabad 2009: HW 8 *Hydrological theory and limits to hydrological predictability in ungauged basins*, convener.
- RIMAX Workshop “Trierer Workshop zur N-A-Modellierung "Abflüsse aus extremen Niederschlägen”, Trier, Germany, September 2009, scientific committee.
- Tag der Hydrologie 2010 in Braunschweig, Nachhaltige Wasserwirtschaft durch Integration von Hydrologie, Hydraulik, Gewässerschutz und Ökonomie
- EGU General Assembly 2010, Session *Hydrological processes in landslide research: analysis and quantification*, co convener.
- Workshop zur “Großskaligen Hydrologie”, 4-5 November, Evangelische Akademie Tutzing.
- Tag der Hydrologie 2011 Hydrologie & Wasserwirtschaft - Von der Theorie zur Praxis, March 2011, Vienna.
- EGU General Assembly 2011, Session HS1.6 Metrics and the Use of Data in Hydrology to support Model Structure Improvement, April 2011 Vienna
- EGU General Assembly 2012, Session HS1.3 Hydrology Metrics, April 2012 Vienna, co -convener
- EGU General Assembly 2012, Session HS2.17 Catchment Similarity and Organisation, April 2012 Vienna
- Tag der Hydrologie 2012, Wasser ohne Grenzen, March 2012, Freiburg.

Awards and Nominations

May 2006	Short list place 3 for professorship in <i>Hydrology and Qualitative Water Management</i> (full professor), Wageningen University, The Netherlands.
March 2007	Short list place 3 for professorship in Hydrology (full professor, level W3), University of Freiburg, Germany.
June 2007	Short list place 1 for professorship in Water and Solute Transport at the Landscape Scale (full professor, level W2), University of Potsdam, preferred to move to Munich.
June 2007	Short list place 1 for professorship in Hydrology and River Basin Management, (full professor, level W2), Technische Universität München
April 2009	HESS best Editor Award

PHD supervisions

Current

- Jan Wienhöfer: *Structure and process interactions in hydrological systems of organised complexity*, Faculty of Civil, Geo and Environmental Sciences, KIT.
- Conrad Jackisch: *Catchment as dynamic systems*, Faculty of Civil, Geo and Environmental Sciences, KIT.
- Simon Seibert: *Improving operational flood forecasting*, Faculty of Civil, Geo and Environmental Sciences, KIT
- *Giorgia Fosser, Future changes of heavy precipitation events relevant to soil erosion derived from high resolution climate simulations*. Faculty of Civil, Geo and Environmental Sciences, KIT

Past promotions

- Thomas Gräff: *Understanding and assessment of soil moisture dynamics and soil moisture control on flow and runoff formation at different spatial scales: From observation to modelling*. Faculty of Mathematics and Natural Sciences, University of Potsdam, Sept. 2011. Promoter.
- Dominik Reusser: *Uncertainty assessment and decision support for operational flood management in headwater catchments*, Faculty of Mathematics and Natural Sciences, University of Potsdam. Promoter.
- Julian Klaus: *Preferential flow in cultivated lower meso scale catchments: observation, modelling and implications*. TU München, July 2011, Promoter.
- Falk Lindenmaier: *Hydrology of a large unstable hillslope at Ebnit, Vorarlberg: Identifying dominating processes and structures*. Faculty of Mathematics and Natural Sciences, University of Potsdam, Jan. 2009. Promoter.

Past co-promotions

- Stefan Krause (2005): *Untersuchung und Modellierung von Wasserhaushalt und Stofftransportprozessen in grundwassergeprägten Landschaften am Beispiel der Unteren Havel*. Faculty of Mathematics and Natural Sciences, University of Potsdam, Promoter Prof. Dr. A. Bronstert.
- Frank Voß (2005): *Integrierte Modellierung von Durchflusssdynamik und salinärer Stofftransportprozesse unter Berücksichtigung anthropogener Steuerungen am Beispiel der Unstrut*. Faculty of Mathematics and Natural Sciences, University of Potsdam, Promoter Prof. Dr. A. Bronstert.
- Gicy M. Kovoor (2006): *Modelling the impact of climate change on irrigated agriculture in India*, Department of Applied Mechanics & Hydraulics National Institute of Technology, Karnataka, India, Promoter Prof. Dr. L.Nandagiri.
- Brigit Köhler (2009): *Soil nitrogen and carbon dioxide emissions from a tropical lowland and montane forest exposed to elevated nitrogen input*, Universität Göttingen, Faculty of Forest Science and Forest Ecology, Promoter Dr. M. Corre.
- Yi He (2008): *Application of a Non-parametric Classification Scheme to Catchment Hydrology*, Faculty of Civil Engineering, University of Stuttgart. Prof. Dr. A. Bárdossy.

- Amy Hearmann (2008): A modelling study into the effects of rainfall variability and vegetation patterns on surface runoff for semi-arid landscapes. School of Earth and Environment, the University of Western Australia, Promoter Dr. C. Hinz.
- Song Pan Wan (2009): Application of different Model concepts for Simulation of Two-Phase Flow Processes in Porous Media with fault zones, Technical University of Berlin, Promoter Prof. Dr. R. Hinkelmann
- Britta Tietjen (2009): *Drylands under climate change a novel eco hydrological modelling approach*, Faculty of Mathematics and Natural Sciences, University of Potsdam, Promoter Prof. Dr. F. Jeltsch.
- Pawan Tapa (2009): *Physically-based spatially distributed rainfall runoff modelling for soil erosion estimation*, University of Stuttgart, Promoter Prof. Dr. András Bárdossy.

International Member of a PhD reading committee in the Netherlands

- Guoping Zhang (2007): *Modelling hydrological response at catchment scale - Application and extension of the Representative Elementary Watershed (REW) approach* (promoter: Prof. Dr. HHG Savenije, TU Delft)
- Fabricio Fenicia (2008): *Understanding catchment behaviour through model concept improvement* (promoter: Prof. Dr. HHG Savenije, TU Delft, UNESCOIHE, the Netherlands)
- Nico de Vos (2009): *Computational intelligence in Rainfall Runoff Modelling*. (promoter: Prof. Dr. HHG Savenije, TU Delft, UNESCOIHE, the Netherlands)
- Martijn Westhoff (2011): (promoter: Prof. Dr. HHG Savenije, TU Delft, UNESCOIHE, the Netherlands)

Academic service

New curricula Development of the new curriculum of a Bachelor/Master of Science in Geoecology (coordinator), together with Dr. Boris Schröder, Niklas Hartmann (student) and Dr. Holger Rössling

Study issues *Commission Teaching and Studies*, Faculty of Mathematics and Natural Sciences, University of Potsdam (Lehr- und Studienkommission), March 2005 – March 2008

Chairs

- Berufungskommission der Juniorprofessur für Landschaftsmanagement und Ressourcenschutz
- Chairman of the PhD -examination committees of Sönke Zähle, Fred Hattermann, Joachim Post, Vanessa Strauch, Michael Haselbauer
- Member of the habilitation-committees of Dr. Christian Kersebaum, Dr. Mickael Kumke and Dr. Bruno Merz, Brigitte Helmreich

Karlsruhe, 13.02.2012

Prof. Dr.-Ing. Erwin Zehe

Academic referees

International academic referees

<p>Prof. Dr. Murugesu Sivapalan Departments of Geography and Civil & Environmental Engineering University of Illinois, Urbana-Champaign, USA Phone: +1 (217) 333 2675 E-Mail: sivapala@uiuc.edu</p>	<p>Prof. Dr. Hubert Savenije Water Resources Section, Faculty of Civil Engineering and Geosciences Delft University of Technology, The Netherlands Phone: +31 (0)15 2785559 E-Mail: H.H.G.Savenije@tudelft.nl</p>
<p>Prof. Dr. Peter Troch or Prof. Dr. Hoshin Gupta Department of Hydrology and Water Resources The University of Arizona John W. Harshbarger Building 1133 E James E. Rogers Way Tucson, AZ 85721, USA Phone: +1 520 626-1277 Fax: +1 520 621-1422 E-Mail: patroch@hwr.arizona.edu</p>	<p>Prof. Dr. Keith Beven Environmental Science Lancaster University, Lancaster LA1 4YQ, UK Phone: +44 (0)1524 593892 E-mail: k.beven@lancaster.ac.uk</p>

German speaking academic referees

<p>Prof. Dr. A. Bárdossy Institute of Hydraulic Engineering University of Stuttgart Pfaffenwaldring 61 D-70569 Stuttgart, Germany Phone: +49 (0)711 / 685 – 64679 Fax :+49 (0)711 / 685 –64681 E-mail: andras.bardossy@iws.uni-stuttgart.de</p>	<p>Prof. Dr. G. Blöschl Institute of Hydraulics, Hydrology and Water Resources Management Vienna University of Technology, A-1040 Vienna, Austria Phone: +43 1 58801 22315 Fax: +43 1 58801 22399 E-mail: bloeschl@hydro.tuwien.ac.at</p>
<p>Prof. Dr. Nicola Fohrer Institut für Natur- und Ressourcenschutz Universität Kiel Olshausenstr. 40, 24098 Kiel Phone: 0431 880-1276 Fax: 0431 880-4083 E-Mail: nfohrer@ecology.uni-kiel.de</p>	<p>Prof. Dr. Bruno Merz Sektion 5.4, Hydrologie Helmholtz-Zentrum Potsdam, Deutsches GeoForschungsZentrum GFZ Telegrafenberg, C4 2.14, D-14473 Potsdam Phone: 0331 288-1500 Fax: 0331 288-1570 E-Mail: bruno.merz@gfz-potsdam.de</p>
<p>Prof. Dr. Thorsten Wagener</p>	

Department of Civil and Environmental Engineering Pennsylvania State University 231F Sackett Building, University Park, PA 16802, USA Phone: +1 814 865-5673 Fax: +1 814 863-7304 E-Mail: thorsten@engr.psu.edu	
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